## Listing and Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Previously presented) A fully redundant linearly expandable router, comprising:

a first router component, said first router component including a first routing engine having input and output sides and a second routing engine having input and output sides;

a second router component, said second router component including a third routing engine having input and output sides and a fourth routing engine having input and output sides;

a third router component, said third router component including a fifth routing engine having input and output sides and a sixth routing engine having input and output sides;

a first link, said first link coupling said input side of said first routing engine to said input side of said third routing engine;

a second link, said second link coupling said input side of said first routing engine to said input side of said fifth routing engine;

a third link, said third link coupling said input side of said third routing engine to said input side of said fifth routing engine;

a fourth link, said fourth link coupling said input side of said second routing engine to said input side of said fourth routing engine;

a fifth link, said fifth link coupling said input side of said second routing engine to said input side of said sixth routing engine; and

a sixth link, said sixth link coupling said input side of said fourth routing engine to said input side of said sixth routing engine;

wherein said first, third and fifth routing engines and said second, fourth and sixth routing engines are arranged in respective fully connected topologies.

2. (Previously presented) The apparatus of claim 1, wherein:

said first, second, third, fourth, fifth and sixth routing engines each have N inputs to said input side thereof and M outputs from said output side thereof;

said N inputs to and said M outputs from said second routing engine are redundant of said N inputs to and said M outputs from said first routing engine;

said N inputs to and said M outputs from said fourth routing engine are redundant of said N inputs to and said M outputs from said third routing engine;

said N inputs to and said M outputs from said sixth routing engine are redundant of said N inputs to and said M outputs from said fifth routing engine;

said linearly expandable router formed from said first, second, third, fourth, fifth and sixth routing engines having 3N inputs and 3M outputs.

3. (Previously presented) The apparatus of claim 2, wherein:

said first link provides said N inputs to said first routing engine to said input side of said third routing engine as a first N additional inputs thereto and provides N inputs to said third routing engine to said input side of said first routing engine as a first N additional inputs thereto;

said second link provides said N inputs to said first routing engine to said input side of said fifth routing engine as a first N additional inputs thereto and provides N inputs to said fifth routing engine to said input side of said first routing engine as a second N additional inputs thereto;

said third link provides said N inputs to said third routing engine to said input side of said fifth routing engine as a second N additional inputs thereto and provides said N inputs to said fifth routing engine to said input side of said third routing engine as a second N additional inputs thereto;

said fourth link provides said N redundant inputs to said second routing engine to said input side of said fourth routing engine as a first N additional redundant inputs thereto and provides said N redundant inputs to said fourth

routing engine to said input side of said second routing engine as a first N additional redundant inputs thereto;

said fifth link provides said N redundant inputs to said second routing engine to said input side of said sixth routing engine as a first N additional redundant inputs thereto and provides said N redundant inputs to said sixth routing engine to said input side of said second routing engine as a second N additional redundant inputs thereto; and

said sixth link provides said N redundant inputs to said fourth routing engine to said input side of said sixth routing engine as a second N additional redundant inputs thereto and provides said N redundant inputs to said sixth routing engine to said input side of said fourth engine as a second N additional redundant inputs thereto.

4. (Previously presented) The apparatus of claim 1, and further comprising:

a fourth router component, said fourth router component including a seventh routing engine having input and output sides and an eighth routing engine having input and output sides

a seventh link, said seventh link coupling said input side of said first routing engine to said input side of said seventh routing engine;

an eighth link, said eighth link coupling said input side of said third routing engine to said input side of said seventh routing engine;

a ninth link, said ninth link coupling said input side of said fifth routing engine to said input side of said seventh routing engine;

a tenth link, said tenth link coupling said input side of said second routing engine to said input side of said eighth routing engine;

an eleventh link, said eleventh link coupling said input side of said fourth engine to said input side of said eighth routing engine;

a twelfth link, said twelfth link coupling said input side of said sixth routing engine to said input side of said eighth routing engine;

wherein said first, third, fifth and seventh routing engines and said second, fourth, sixth and eighth routing engines are arranged in respective fully connected topologies.

5. (Previously presented) The apparatus of claim 4, wherein:

said first, second, third, fourth, fifth, sixth, seventh and eighth routing engines each have N inputs to said input side thereof and M outputs from said output side thereof;

said N inputs to and said M outputs from said second routing engine are redundant of said N inputs to and said M outputs from said first routing engine;

said N inputs to and said M outputs from said fourth routing engine are redundant of said N inputs to and said M outputs from said third routing engine;

said N inputs to and said M outputs from said sixth routing engine are redundant of said N inputs to and said M outputs from said fifth routing engine;

said N inputs to and said M outputs from said eighth routing engine are redundant of said N inputs to and said M outputs from said seventh routing engine;

said linearly expandable router formed from said first, second, third, fourth, fifth, sixth, seventh and eighth routing engines having 4N inputs and 4M outputs.

6. (Previously presented) The apparatus of claim 5, wherein:

said first link provides said N inputs to said first routing engine to said input side of said third routing engine as a first N additional inputs thereto and provides N inputs to said third routing engine to said input side of said first routing engine as a first N additional inputs thereto;

said second link provides said N inputs to said first routing engine to said input side of said fifth routing engine as a first N additional inputs thereto and provides N inputs to said fifth routing engine to said input side of said first routing engine as a second N additional inputs thereto;

said third link provides said N inputs to said third routing engine to said input side of said fifth routing engine as a second N additional inputs thereto and

provides said N inputs to said fifth routing engine to said input side of said third routing engine as a second N additional inputs thereto;

said fourth link provides said N redundant inputs to said second routing engine to said input side of said fourth routing engine as a first N additional redundant inputs thereto and provides said N redundant inputs to said fourth routing engine to said input side of said second routing engine as a first N additional redundant inputs thereto;

said fifth link provides said N redundant inputs to said second routing engine to said input side of said sixth routing engine as a first N additional redundant inputs thereto and provides said N redundant inputs to said sixth routing engine to said input side of said second routing engine as a second N additional redundant inputs thereto;

said sixth link provides said N redundant inputs to said fourth routing engine to said input side of said sixth routing engine as a second N additional redundant inputs thereto and provides said N redundant inputs to said sixth routing engine to said input side of said fourth engine as a second N additional redundant inputs thereto;

said seventh link provides said N inputs to said first routing engine to said input side of said seventh routing engine as a first N additional inputs thereto and provides said N inputs to said seventh routing engine to said input side of said first routing engine as a third N additional inputs thereto;

said eighth link provides said N inputs to said third routing engine to said input side of said seventh routing engine as a second N additional inputs thereto and provides said N inputs to said seventh routing engine to said input side of said third routing engine as a third N additional inputs thereto;

said ninth link provides said N inputs to said fifth routing engine to said input side of said seventh routing engine as a third N additional inputs thereto and provides said N inputs to said seventh routing engine to said input side of said fifth routing engine as a third N additional inputs thereto;

said tenth link provides said N inputs to said second routing engine to said input side of said eighth routing engine as a first N additional redundant inputs thereto and providing said N redundant inputs to said eighth routing engine to said input side of said second routing engine as a third N additional redundant inputs thereto;

said eleventh link provides said N inputs to said fourth routing engine to said input side of said eighth routing engine as a second N additional redundant inputs thereto and provides said N redundant inputs to said eighth routing engine to said input side of said fourth routing engine as a third N additional redundant inputs thereto; and

said twelfth link provides said N redundant inputs to said sixth routing engine to said input side of said eighth routing engine as a third N additional redundant inputs thereto and providing said N redundant inputs to said eighth routing engine to said input side of said sixth routing engine as a third N additional redundant inputs thereto.

7. (Previously presented) A fully redundant linearly expandable broadcast router, comprising:

at least three broadcast router components, each of said at least three broadcast router components having a first router matrix and a second router matrix that is redundant of the first router matrix;

means for coupling said first router matrices of said at least three broadcast router components in a first fully connected topology; and

means for coupling said second router matrices of said at least three broadcast router components in a second fully connected topology.

8. (Previously presented) The apparatus of claim 7, wherein:

each one of said first router matrices further comprises a routing engine coupled between input and output sides thereof; and

each one of said second router matrices further comprises a routing engine coupled between input and output sides thereof.

9. (Previously presented) The apparatus of claim 8, wherein said routing engine for each one of said first and second router matrices has N inputs coupled to said input side thereof.

10. (Previously presented) The apparatus of claim 9, wherein said N inputs to said routing engine of a first one of said second router matrices is redundant of said N inputs to said routing engine of a first one of said first router matrices.

11. (Previously presented) The apparatus of claim 10, wherein said N inputs to said routing engine of a second one of said second router matrices is redundant of said N inputs to said routing engine of a second one of said first router matrices.

12. (Previously presented) The apparatus of claim 11, wherein said N inputs to said routing engine of a third one of said second router matrices is redundant of said N inputs to said routing engine of a third one of said first router matrices.

13. (Previously presented) A method of constructing a fully redundant linearly expandable broadcast router, comprising:

providing first, second, third, fourth, fifth and sixth router matrices, each having input and output sides, wherein said second, fourth and sixth router matrices are respectively redundant of said first, third and fifth router matrices;

coupling, using a first discrete link, said input side of said first router matrix to said input side of said third router matrix;

coupling, using a second discrete link, said input side of said first router matrix to said input side of said fifth router matrix;

coupling, using a third discrete link, said input side of said third router matrix to said input side of said fifth router matrix;

coupling, using a fourth discrete link, said input side of said second router matrix to said input side of said fourth router matrix;

coupling, using a fifth discrete link, said input side of said second router matrix to said input side of said sixth router matrix; and

coupling, using a sixth discrete link, said input side of said fourth router matrix to said input side of said sixth router matrix.

14. (Previously presented) The method of claim 13, and further comprising:

providing seventh and eighth router matrices, each having input and output sides;

coupling, using a seventh discrete link, said input side of said first router matrix to said input side of said seventh router matrix;

coupling, using an eighth discrete link, said input side of said third router matrix to said input side of said seventh router matrix;

coupling, using a ninth discrete link, said input side of said fifth router matrix to said input side of said seventh router matrix;

coupling, using a tenth discrete link, said input side of said second router matrix to said input side of said eighth router matrix;

coupling, using an eleventh discrete link, said input side of said fourth router matrix to said input side of said eighth router matrix; and

coupling, using a twelfth discrete link, said input side of said sixth router matrix to said input side of said eighth router matrix.